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## REMARKS ON *PETALODUS ALLEGHANIENSIS* LEIDY.

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IN an article entitled "Description of a New Species of *Petalodus*," etc. (this JOURNAL, Vol. III., No. 5), Dr. O. P. Hay describes an interesting specimen of a selachian tooth from the Carboniferous limestone of Illinois, for which he proposes the name *Petalodus securiger*. A number of characters are enumerated, in which the supposed new species is believed to differ from *P. alleghaniensis* and *P. destructor*, these two being regarded by the author as distinct. The article concludes with the suggestion that in case the identity of *P. alleghaniensis*, *destructor* and *securiger* ultimately be established, the name *P. ohioensis*, proposed by Professor J. M. Safford in 1853, should be reinstated on the ground of priority.

In the opinion of the present writer, all the forms described under the above names are identical, and as the validity of the well established title proposed by Leidy is brought into question, a few considerations may not be out of place in favor of its retention. These considerations would have been submitted much earlier, but for the fact that the writer has been awaiting an opportunity for comparing the Illinois specimen with the fine series of *Petalodont* teeth in the collection of the Museum of Comparative Zoölogy at Cambridge; he regrets, however, that a reported accident to the specimen has rendered it inaccessible to him.

As Dr. Hay does not state his reasons for preferring to regard *P. alleghaniensis* and *P. destructor* as distinct species, it may be as well to accept the opinion of Leidy, Newberry, St. John and others as authoritative, who hold that the two names are synonymous. In point of fact, less differences are to be noticed between specimens attributed to the above-named species than are exhibited by the teeth of the one species *P. acuminatus*

from limited localities in Yorkshire and Armagh. Attention has been called repeatedly to the great differences existing among detached teeth belonging to one and the same species, due to conditions of wear, age, geographical distribution, and other causes; and particularly to the wide range of variations displayed by teeth of the same individual, depending upon the position occupied in the mouth. In the case of *Petalodus*, we can infer what this second class of variations were, from analogy with the closely related genus *Janassa*. All of the minor differences in form and size which our author observes between *P. securiger* and *P. alleghaniensis* may be reasonably referred to this category.

The marked variation in the size of *P. alleghaniensis* correlating with geographical distribution has already been commented on by Newberry (Pal. Ohio, Vol. II., p. 53), the Ohio specimens being only about one-half as large as the western ones. Had our author compared his specimen with the figures and description of Leidy's type (Jour. Acad. Nat. Sci. Philad. [2], Vol. III., p. 162), instead of with the one figured in the Extinct Vertebrate Fauna, he would have found that the agreement is closer than he supposes; among other features, the number of basal enamel folds is precisely the same in both forms.

Finally, the rounding of the lateral angles (only one is preserved on Dr. Hay's specimen), can hardly be considered as of specific importance, since it, too, is a variable function; nor does the prominence of the enamel bands on the posterior surface appear to have any particular significance. The conclusion reached by the present writer is that at the most *P. securiger* is only a variety of *P. alleghaniensis*.

As to the availability of the terms *P. extinctus* and *P. ohioensis*, both are clearly untenable. Leidy's provisional designation of "*Sicarius extinctus*," proposed in 1856, was merely tentative, and unaccompanied by either figures or description of any kind. When, a few months later, the species was adequately described, this name was withdrawn, as was entirely proper, and that of *Petalodus alleghaniensis* substituted instead. In all probability

the specimen for which Safford proposed the name "*Getalodus Ohioensis*" was a true *P. alleghaniensis*; but this cannot be settled from the description, which is wholly insufficient, and the rough sketches of the tooth are not only unrecognizable, but, as Dr. Hay himself intimates, probably erroneous. Such being the case, it is in accordance with the ordinary rules of nomenclature that Professor Safford's term should lapse.

CHARLES R. EASTMAN, PH.D.

MUSEUM OF COMPARATIVE ZOÖLOGY,  
Cambridge, Mass.